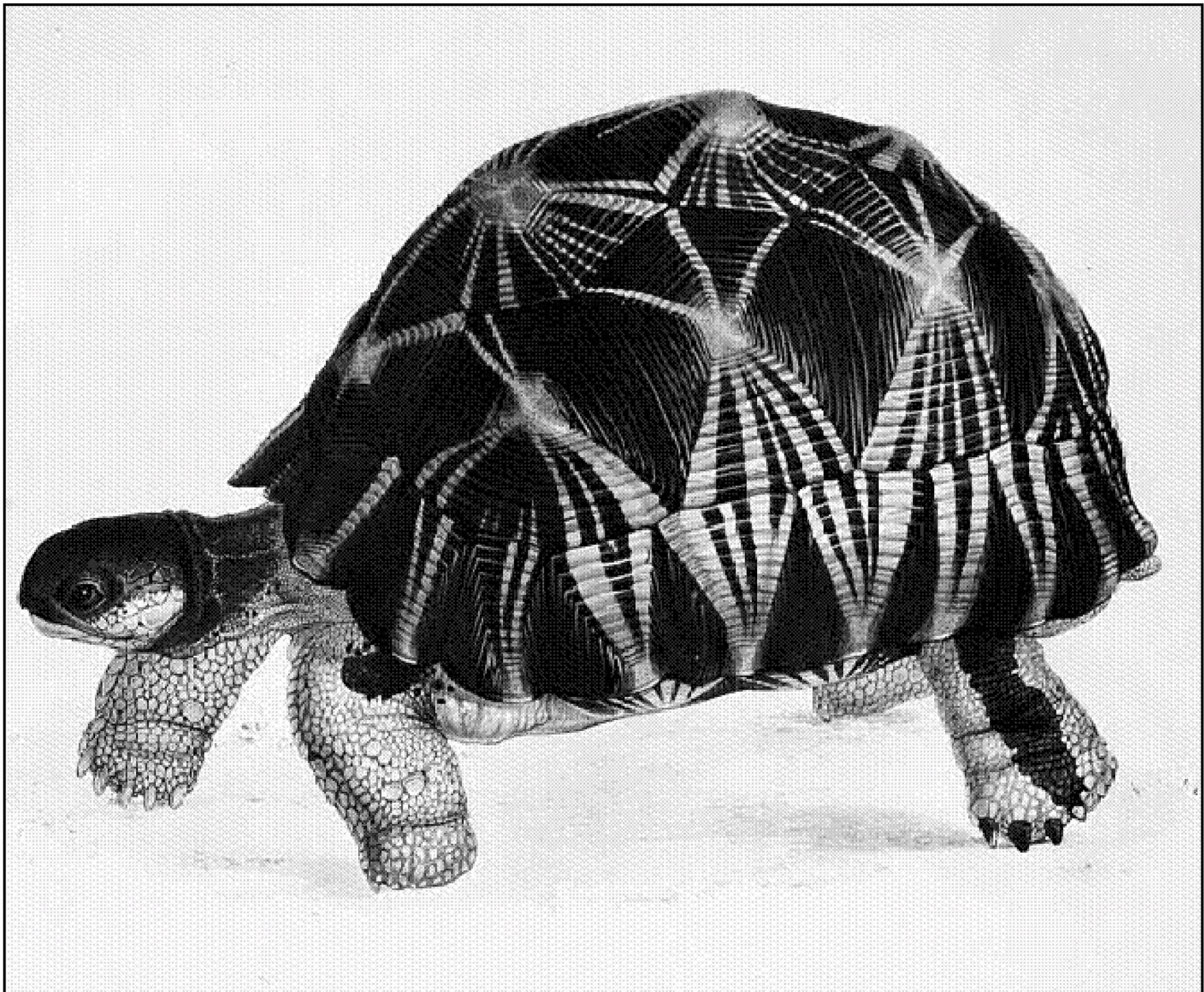

BULLETIN

of the

Chicago Herpetological Society



Volume 36, Number 6
June 2001



BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
Volume 36, Number 6
June 2001

<i>Heterodon</i> to 1950, An Historical Assessment	Richard A. Edgren	121
Field Research on Radiated Tortoises (<i>Geochelone radiata</i>) in Southwest Madagascar (1997–2000)	Thomas E. J. Leuteritz	123
The Tympanum	Donald G. Wheeler	131
Unofficial Minutes of the CHS Board Meeting, May 18, 2001		131
Herpetology 2001		133
Advertisements		135
News and Announcements		136

Cover: Radiated tortoise, *Geochelone radiata*. Drawing from Plate 7 of *A Monograph of the Testudinata* by Thomas Bell, 1832–1836.

STAFF

Editor: Michael A. Dloogatch
Advertising Manager: Ralph Shepstone

2001 CHS Board of Directors

Jack Schoenfelder, President
Lori King, Vice-President
Greg Brim, Treasurer
Emily Forcade, Recording Secretary
Steve Spitzer, Corresponding Secretary
Michael Redmer, Publications Secretary
Michael A. Dloogatch, Membership Secretary
Dan Bavirsha, Sergeant-at-Arms
Rich Crowley, Member-at-Large
Char Haguewood, Member-at-Large
Linda Malawy, Member-at-Large
Jenny Vollman, Member-at-Large

The Chicago Herpetological Society is a nonprofit organization incorporated under the laws of the state of Illinois. Its purposes are education, conservation and the advancement of herpetology. Meetings are announced in this publication, and are normally held at 7:30 P.M., the last Wednesday of each month.

Membership in the CHS includes a subscription to the monthly *Bulletin*. Annual dues are: Individual Membership, \$22.00; Family Membership, \$25.00; Sustaining Membership, \$50.00; Contributing Membership, \$100.00; Institutional Membership, \$38.00. Remittance must be made in U.S. funds. Subscribers outside the U.S. must add \$12.00 for postage. Send membership dues or address changes to: Chicago Herpetological Society, Membership Secretary, 2060 N. Clark Street, Chicago, IL 60614.

Manuscripts published in the *Bulletin of the Chicago Herpetological Society* are not peer reviewed. Manuscripts should be submitted, if possible, on IBM PC-compatible or Macintosh format diskettes. Alternatively, manuscripts may be submitted in duplicate, typewritten and double spaced. Manuscripts and letters concerning editorial business should be sent to: Chicago Herpetological Society, Publications Secretary, 2060 N. Clark Street, Chicago, IL 60614. **Back issues** are limited but are available from the Publications Secretary for \$2.50 per issue postpaid. **Visit the CHS home page at** <<http://www.Chicagoherp.org>>.

The BULLETIN of the Chicago Herpetological Society (ISSN 0009-3564) is published monthly by the Chicago Herpetological Society. Copyright © 2001.

Heterodon to 1950, An Historical Assessment

Richard A. Edgren
50 Oakhaven Way
Woodside, CA 94062

Gibbons (2000, Herpetologists’ League Newsletter) has recently pointed out that *Heterodon simus*, the southern hog-nosed snake, has not been reported from Mississippi or Alabama for more than 18 years. The basis for this statement has been discussed at length by Tuberville et al. (2000). Gibbons’s statement is certainly disconcerting to the conservation-minded biologist, but the absence of long-term baseline data leaves one at a loss to interpret the situation.

Shortly after World War II (roughly 1948–1952) I reviewed the genus *Heterodon* in a dissertation (Edgren, 1952). While preparing that review I examined, I believe, virtually every *Heterodon* in major U.S. collections and in a number of smaller collections as well. Stimulated by Gibbons’ statement I revisited the dissertation in an effort to determine whether these older data might establish any reference points for comparison with current data on *H. simus*. I had little recollection of specimens of *H. simus* from either state, which was confirmed by reexamination of the dissertation. I found that I had seen only two Alabama and three Mississippi specimens while preparing my review of the genus.

Furthermore, a reevaluation of the distributional data collected for the dissertation for all three species of *Heterodon* (Table 1) might provide a crude baseline for comparison with more recent distributional and prevalence data.

If valid, this approach will provide an unexplored source of earlier data for comparison with newer information. Over the past half-century or so, a number of exhaustive studies have been published that list practically all specimens of a given species that were available at the time in herpetological collections. Reexamination of these listings may give suggestions of the earlier status of a given species that are otherwise unavailable.

Certainly, such a compilation has many weaknesses. First, it cannot provide an accurate picture of the distribution of the animals under study — it gives a picture of the distribution of herpetologists. However, biologists in many disciplines are accustomed to “connecting the dots” at the periphery of a species’ range in order to provide range maps, which are all conditioned by the travels of collectors. Second, abundance data are at best suspect since herpetologists tend to return repeatedly to areas where desired species have been collected, reported or seen. Thus such data are biased, and except in rare circumstances there is no satisfactory way to assess the degree of bias. Third, such an analysis cannot give a picture of the situation at any specific point in time.

The *Heterodon* specimens I examined for the dissertation were collected from the mid-nineteenth century to roughly 1950. Table 1, therefore, gives a cumulative picture of the distribution and abundance of the three species prior to that date. The use of 1950 as a cutoff point is a convenient reference point since most specimens were probably collected before that date and it comes at the end of the period of limited

Table 1. *Heterodon* specimens examined (Edgren, 1952).

State	<i>H. platirhinos</i> N (%)	<i>H. nasicus</i> N (%)	<i>H. simus</i> N (%)
Alabama	15 (1.4)		2 (2.1)
Arkansas	30 (2.9)		
Arizona		15 (5.6)	
Chihuahua		4 (1.5)	
Coahuila		6 (2.2)	
Connecticut	6 (0.6)		
Colorado		17 (6.3)	
Delaware	6 (0.6)		
Florida	118 (11.3)		37 (38.1)
Georgia	39 (3.7)		14 (14.4)
Illinois	89 (8.5)	14 (5.2)	
Indiana	71 (6.8)	1 (0.4)*	2 (2.1)*
Iowa	22 (2.1)	1 (0.4)	
Kansas	37 (3.5)	63 (23.4)	
Kentucky	12 (1.1)		
Louisiana	26 (2.5)		
Maryland	47 (4.5)		
Massachusetts	16 (1.5)		
Michigan	84 (8.0)		
Minnesota	1 (0.1)		
Missouri	35 (3.3)	3 (1.1)	
Mississippi	30 (2.9)		3 (3.1)
Montana		12 (4.5)	
Nebraska	1 (0.1)	21 (7.8)	
New Hampshire	1 (0.1)		
New Jersey	26 (2.5)		
New Mexico		15 (5.6)	
New York	60 (5.7)		
North Carolina	39 (3.7)		6 (6.2)
North Dakota		12 (4.5)	
Ohio	7 (0.7)		
Oklahoma	12 (1.1)	29 (10.8)	
Ontario	4 (0.4)		
Pennsylvania	39 (3.7)		
San Luis Potosí		2 (0.7)	
Sonora		1 (0.4)*	
South Dakota		19 (7.1)	
South Carolina	46 (4.4)		32 (33.0)
Tamaulipas		4 (1.5)	
Tennessee	15 (1.4)		
Texas	39 (3.7)	28 (10.4)	
Virginia	29 (2.8)		1 (1.0)*
West Virginia	28 (2.7)		
Wisconsin	18 (1.7)		
Wyoming		1 (0.4)	
Zacatecas		1 (0.4)	
Totals	1048 (100)	269 (100)	97 (100)

* doubtful record

human expansion imposed by the great depression and the Second World War.

Heterodon simus Linnaeus

The two Alabama specimens, MCZ 294, were from Mobile, Mobile Co., and the Mississippi specimens were from Biloxi, Harrison Co. (UMMZ 76779); the Harrison-Jackson Co. line 12 miles south of Vestri (AMNH 46739); and Vestri, Jackson Co. (CNHM 21538). In addition to these specimens, Alabama records for *H. simus* included Holt, Autauga Co., and Ozark, Dale Co. (Snyder, 1945); Perdido, Baldwin Co. (Löding, 1922; Haltom, 1931) and Tuscaloosa Co. (Haltom, 1931), leading me to believe that the species may have been distributed generally through the southern half of the state. I was aware of no literature records for Mississippi. Recently, Eckerman (1996), in a systematic review of *Heterodon nasicus*, examined a few *H. simus* and included two specimens from near Oxford, Lee Co., Mississippi, that were not in my sample (Lazell [pers. com.] has questioned the origin of these specimens); Eckerman saw no Alabama specimens. It is apparent that *H. simus* was not particularly abundant either in Mississippi or Alabama prior to about 1950, so the absence of specimens through the 1980s and 1990s may not be surprising.

Specimens of *H. simus* from Florida, South Carolina and Georgia were well represented in the collections I studied. The two Indiana and the one Virginia specimens are certainly mislabeled. However, the peripheral states, Alabama and Mississippi and North Carolina, were rather poorly represented, which may suggest that these states were ecologically less suitable for this species, generally, although suitable local conditions certainly existed. Tuberville et al. (2000) have recently reported on substantial numbers of North Carolina specimens. The greatest proportion of my sample was Floridian which is to be expected in view of the heavy collecting that has been directed towards that state. Thirty-eight percent of the specimens I saw came from Florida. South Carolina was also well represented, 33%; Georgia contributed only 14%. I know of no reason why Georgia was poorly represented in comparison with its immediate neighbors. I would suspect intensity of collecting, but I cannot document this.

Perhaps the most striking result of this reassessment of these data is the fact that *H. simus* was not the rare species I had thought it to be. In comparison with *Heterodon platirhinos*, which I considered to be relatively common, *H. simus* did not appear to be particularly rare. To consider only the well-represented states: for South Carolina each *H. simus* can be matched to 1.4 *H. platirhinos*; for Georgia the ratio is 2.8 and in Florida 3.2. In each case, and particularly in Florida, the ranges for *H. platirhinos* are more extensive than those for *H. simus*, and could perhaps account for the discrepancy in representation. It would appear that up to 1950, *H. simus* was about as common as *H. platirhinos* over broad portions of the species' range.

Heterodon simus is sympatric with *Heterodon platirhinos* throughout its range and little is known of comparative ecological requirements of the two species that could explain discrepancies in distribution or abundance. Ecological similarities

may suggest that the two species are in competition, with *H. platirhinos* winning on the periphery but not in the center of the range of *H. simus*.

Heterodon platirhinos Latreille

In contrast to *H. simus*, *H. platirhinos* failed to show such extreme variations in representation. Again Florida was the most heavily represented state with Michigan second and Illinois, Indiana and New York in rather intermediate positions. Florida, again, and Michigan have been heavily collected for many years, as I believe is demonstrated by the data. Certain peripheral areas were, again, rather poorly represented, e.g., New Hampshire, Minnesota and Nebraska, but whether these represent lack of collecting or actual reduced prevalence due to restricted ranges remains to be determined. Michener and Lazell (1989), suggest that *H. platirhinos* is relatively rare in the far northeast corner of its range, and compared numbers of museum specimens from Massachusetts and New Hampshire with numbers of other common species. They concluded that *H. platirhinos* were scarcer than *Diadophis punctatus*, *Storeria occipitomaculata*, and *Thamnophis sauritus*, equivalent to *Opheodrys vernalis* and more common than *Coluber constrictor*, *Lampropeltis triangulum*, and *Nerodia sipedon*. They conditioned their conclusions on the basis of whether the individual species tended to aggregate and therefore would be collected in large series.

Heterodon nasicus Baird and Girard

This species and *H. platirhinos* are largely allopatric, although their ranges broadly overlap in some western states (e.g., Kansas, Oklahoma, Texas). In Kansas and Texas the eastern parts of the states were well-represented by specimens of *H. platirhinos*, whereas the western parts of the states seemed to be *H. nasicus* country. Except for the panhandle, *H. platirhinos* appeared to be generally represented throughout Oklahoma, whereas *H. nasicus* was again largely restricted to the western half of the state. Despite this more limited range of *H. nasicus* in Oklahoma it was far better represented in collections than was *H. platirhinos*, suggesting a more successful adjustment to the environment.

Heterodon nasicus also occurs in small, isolated populations in Illinois, Missouri, Iowa and Minnesota. My only personal experience has been with the Illinois populations which appeared to be Prairie Peninsula relicts (Smith, 1957). The remaining isolated eastern populations may also be interpreted as relictual populations that remained in suitable areas as the main body of the *H. nasicus* population contracted with post-Xerothermic restriction of the eastern extension of the Grassland Biome. *H. platirhinos* also inhabits these Prairie Peninsula relicts in western Illinois, but numbers were too limited for meaningful comparisons.

Mexican populations (*H. nasicus kennerlyi*) were poorly represented in my sample, almost certainly the result of low intensity of collecting. I examined no specimens from Canada. The Canadian populations are clearly at the periphery of the range for the species and the paucity of museum specimens may well accurately reflect a low prevalence resulting from

largely unsuitable habitats.

Eckerman (1996) saw many of the same specimens I examined, but from most areas substantially more individuals were available. He examined approximately 1000 specimens of the three species, most of which were *H. nasicus*. Although some of these specimens could have been missed in my survey, it is likely that many, if not most, have been collected since 1950. The list of states of origin of Eckerman's sample is identical to mine, with the exception of Mexican material. Eckerman added specimens from Durango (1), and Nuevo León (1), again suggesting low peripheral representation. In general it seems that the cumulative data of the past 50 years indicate that the western hog-nosed snake remains extant in all of the broad

areas in its usually defined range. Clearly, local extirpation could have occurred and not been evident from this survey.

One might project that the relict Prairie Peninsula populations in central Illinois, and elsewhere, are in danger of being destroyed; this is a particular concern in view of efforts to drain the Sand Lake area near Havana, Mason County, Illinois (Brown and Cima, 1998), the source of some half of my Illinois *H. nasicus*.

Acknowledgments

I am indebted to Jeffrey Beane, J. W. Gibbons and J. D. Lazell, for comments, and particularly to each of them for calling my attention to the Tuberville et al. paper.

Literature Cited

- Brown, L. E., and J. E. Cima. 1998. Illinois chorus frogs and the Sand Lake dilemma. Pp. 301-311. In: M.J. Lannoo, editor, Status and conservation of Midwestern amphibians. Iowa City: University of Iowa Press.
- Eckerman, C. M. 1996. Variation, systematics, and interspecific position of *Heterodon nasicus* (Serpentes: Xenodontidae). Unpublished thesis, University of Texas at El Paso, xiii + 198 pp.
- Edgren, R. A. 1952. Biogeographic and behavioral considerations of the snakes of the genus *Heterodon*. Unpublished dissertation, Evanston, IL: Northwestern University, ix + 232 pp.
- Haltom, W. L. 1931. Alabama reptiles. University, AL: Geological Survey of Alabama.
- Löding, H. P. 1922. A preliminary catalogue of Alabama amphibians and reptiles. University, AL: Geological Survey of Alabama.
- Michener, M. C., and J. D. Lazell, Jr. 1989. Distribution and relative abundance of the hognose snake, *Heterodon platirhinos*, in eastern New England. J. Herpetology 23:35-40.
- Smith, P. E. 1957. An analysis of the post-Wisconsin biogeography of the Prairie Peninsula region based on distributional phenomena among terrestrial vertebrate populations. Ecology 38:205-218.
- Snyder, R. C. 1945. Notes on the snakes of southwestern Alabama. Copeia (3):173-174.
- Tuberville, T. D., J. R. Bodie, J. B. Jensen, L. Laclaire and J. W. Gibbons. 2000. Apparent decline of the southern hog-nosed snake, *Heterodon simus*. J. Elisha Mitchell Sci. Soc. 116(1):19-40.

Bull. Chicago Herp. Soc. 36(6):123-130, 2001

Field Research on Radiated Tortoises (*Geochelone radiata*) in Southwest Madagascar (1997–2000)

Thomas E. J. Leuteritz
Department of Biology
George Mason University
Fairfax, VA 22030

I am a graduate student of Dr. Carl H. Ernst at George Mason University in Fairfax, Virginia. I started the program here in January 1995 after finishing a Master's program at the University of Michigan. I was interested in conducting research on the reproductive biology of tortoises. My interest in reproductive biology of turtles had started while working with Dr. Justine Congdon at Michigan's E. S. George Reserve and with Dr. Ken Dodd and Dick Franz at Egmont Key, Florida. For three years I looked for funding to work with spurred tortoises (*Geochelone sulcata*) in Senegal, West Africa. I actually traveled to Senegal in 1996 for two weeks to meet with Dr. Michael Lambert (most recent research on *G. sul-*

cata), Bernard Devaux (SOPTOM), Donato Ballasina (CARAPAX) and Tomas Diagne (program for *G. sulcata* conservation in Senegal) regarding research here. Despite this I did not find enough funding to start research in Senegal. It was at this point I had an opportunity to meet with Dr. Russell Mittermeier, President of Conservation International (CI) in Washington, D.C., and I switched my focus to radiated tortoises in Madagascar. Conservation International funded a reconnaissance trip to Madagascar in 1997. My research followed from 1998 to 2000 and is outlined in the following three-part field report series.

Part 1: The Reconnaissance Trip to Madagascar

When: November 11 to December 8, 1997

Where: Antananarivo, Périnet, Fort Dauphin, Berenty, Mahajanga, Ampijoroa Forestry Station, Tuléar, Betioky, Ejeda, Beheloka, and Ampanihy

Purpose: To find a suitable study area in southwest Madagascar; to familiarize myself with Madagascar; to see the Angonoka tortoise breeding station in Ampijoroa; to meet with a local Non-Governmental Organization (NGO); to meet with faculty at the University of Antananarivo; and to meet with governmental officials in order to obtain permission to undertake a study in Madagascar.

Funding: The trip was financed largely through Conservation International, Washington, D.C.

This report is an addendum to my research proposal: “Distribution, Status, and Biology of the Radiated Tortoise, *Geochelone radiata* (Shaw, 1802) in South West Madagascar.” The trip to Madagascar was extremely helpful in augmenting the contacts that I will need to complete this study and in enabling me to have a better understanding of my needs for the study.

On November 13 Dr. Russell Mittermeier, President of Conservation International (CI), and I arrived in Antananarivo. We were met by Mr. Serge Rajaobelina, President of Fanamby (a Malagasy NGO). Later that evening Dr. Mittermeier and I were joined by the remainder of our group. This included his son John (John’s mother, Isabel Constable, is doing a study on chameleons in Ejeda) and Dr. Gerard Arnhold and his family (Focal Ind., Brazil). Over the next two days we visited Madagascar Exotics (a reptile breeding facility) and the Périnet Special Nature Reserve. Upon our return to Antananarivo we flew to Fort Dauphin.

November 16–18 was spent in Fort Dauphin and at Berenty in southern Madagascar. Berenty is a 256 ha private reserve, owned by Mr. Jean DeHeaulme. It is adjacent to the Mandrare River and is composed of gallery and spiny forest. The reserve is home to six species of lemurs, giant fruit bats, giant coua birds, Malagasy scops owls and spider tortoises. Two hundred to 250 radiated tortoises from Reunion Island were transferred here to a large fenced enclosure. This site could potentially be used to look at temperature dependent sex determination in radiated tortoises. Back in Antananarivo we met with David Quamen (author of *Song of the Dodo*). He joined us for our trip up to Ampijoroa.

November 19–21 was spent at the Ampijoroa Forestry station in northwestern Madagascar’s Ankarafantsika Nature Reserve visiting the Jersey Wildlife Preservation Trust’s Angonoka tortoise breeding project. The Angonoka tortoise (*Geochelone yniphora*) is the rarest tortoise in the world, with 100 to 400 tortoises remaining in their bamboo and mixed scrub habitat in the area of Cape Sada. Mamy, the keeper of the tortoises, told me that currently there were seventeen adult tortoises (ten males: seven females) and 134 juvenile tortoises ranging in age from 1 day to 9 years old at the station. In addition to Angonoka tortoises, the station breeds Kapidolo tortoises (*Acinixys planicauda*) and plans to start breeding

Madagascan big-headed turtles (*Erymnochelys madagascariensis*) with the help of CI. After my time here, I left the group to fly to the southwest of the country.

November 23 – December 4 was spent in southwestern Madagascar within the range of the radiated tortoise. I stayed in Ejeda (approximately 150 km southeast of Tuléar) and took day trips out to tortoise habitat. During my stay, Isabel Constable and Bruce Struminger were kind enough to drive me to several sites where tortoises occurred. I collected data on size, sex, weight and habitat for forty radiated tortoises over the two-week period. Two potential study sites were located where reproductive biology could be researched. The first was in the northwestern part of the tortoises’ range, near the fishing village of Beheloka. While in this area over a two-day period, I found twenty-six tortoises (ten adults, sixteen juveniles). The Tsimanampetsotsa *Réserve Naturelle Intégrale* (43,200 ha) is in close proximity to Beheloka and could also serve as a study site. Nussbaum (pers. com., 1998) refers to this as one of two reserves that are in the “center of the species’ range and are potentially important for conservation of sokatra [radiated tortoises].” The second potential study site is further southeast in the tortoises’ range at the Mahafaly Plateau between Androka and Ampanihy (Nussbaum and Lewis, pers. com., 1997).

On December 5 I attended several meetings in Antananarivo. In the morning I went to the *Association Nationale pour la Gestion des Aires Protégées* (ANGAP) to obtain the forms I needed to work in protected areas. At noon I had a meeting with Dr. J. Durbin of Jersey Wildlife Preservation Trust, who supplied me with several papers on studies of radiated tortoises. At 2 P.M. I had a meeting with Mr. Jaspert Rahajaharison, Director of the Division of Gestation of Fauna and Flora at *Eaux et Forêts* (Water and Forest). Mr. Rahajaharison provided me with information necessary to submit a research proposal. The final two meetings were at the University of Antananarivo. The purpose was to let local biologists know of my study and to discuss the possibility of finding a graduate student who would be interested in working on radiated tortoises. The first meeting was with Dr. Daniel Rakotondravony, Director of the Department of Animal Biology. The second meeting was with Dr. Joelisoa Ratsirarson of the Department of Water and Forest at the Agronomy School.

In conclusion, the trip was extremely positive and productive in providing me with a foundation for field work, and allowing me to effectively achieve my purposes. It was also valuable for the insights it provided to my research and to the potential for additional funding, and for the contacts I made. I would like to thank Dr. Mittermeier, Mr. Serge Rajaobelina, and Conservation International for making this possible.

Part 2: The First Field Season

When: November 13, 1998 to May 11, 1999 (Rainy Season).

Where: Antananarivo and Southwest Madagascar: Tsihombe, Maravato, Befeha, **Cap Sainte Marie (CSM)**, Ambovombe, Ambosary, Fort Dauphin, Lavanono, Ankirikirika, Nisoa-Ambony, Itampolo, Lavavolo, Vohombe, Beheloka, Lake Tsimanampetsotsa, Tuléar, Mahaleotse, and Andohahela

(Ihazafotsy).

Purpose: To gather ecological information (especially information on reproductive biology) on wild radiated tortoises (*Geochelone radiata*) for the purposes of conservation and in fulfillment of Ph.D. research. To gather information on tortoise population sizes and genetics at several sites across the tortoise's range.

Funding: The trip was financed through Conservation International, Washington, D.C.; George Mason University, Fairfax, Virginia; Focal Ind., Sao Paulo, Brazil, Chelonian Research Fund, Lunenburg, Massachusetts; and Fanamby, Antananarivo, Madagascar.

Antananarivo (November 13–27, 1998):

The time spent in Antananarivo was largely for logistics and straightening out last minute details. Although I had contacted Dr. Daniel Rakondravony at the Department of Animal Biology at the University of Antananarivo a year ago he had not yet found a student to work with me. After a series of meetings at the university, a student of his, Rollande Ravolanaivo, agreed to go to CSM to help me and as a means of doing her own research on radiated tortoises. I also arranged a meeting with Chantal Andrianarivo of the *Association National pour la Gestion des Aires Protégées* (ANGAP) to finalize the collaborative agreement ANGAP sent me (ANGAP is the governmental organization responsible for protected areas and reserves in Madagascar). Fanamby, a Malagasy NGO run by Serge Rajaobelina in collaboration with Conservation International USA provided me with a research vehicle (1982 Range Rover) and a driver named Jean Paul. Serge opened up his office to me and helped me get an extension to my original thirty-day visa. Several days were spent with the help of Brigitte Randrianaridra buying supplies for my stay in CSM.

Trip to Cap Sainte Marie [CSM] (November 28, 1998, to December 2, 1998):

We set out on the morning of November 28 on our four-day trip to CSM. We traveled 596 km via Antsirabe and Fianarantsoa to Ihosy the first day. The next morning we continued past Sakaraha to Andranovory. Andranovory is the crossroads for National Route 7 from Antananarivo and National Route 10 leading to southern extremes of Madagascar. From this point on there is no longer pavement and the conditions of the road vary with location and season. From here we continued on past Betioky to Ejeda. In Ejeda, a small water-swollen tributary of the Linta River caused us to delay our journey by a few hours. We arrived at our second day's destination, Ampanihy, late in the evening. In the morning we found out that the gasoline tanker truck had not arrived with new gas and would probably not for another two days. Jean Paul and I decided to go back to Ejeda (50 km) because there was an Indian merchant who always had gas when no one else did. By noon we crossed the bone-dry bed of the Menarandra River (the rains had not yet started—two months later during the surveys this would become a massive flowing river that could only be crossed by bridge) and were on our way to Tsihombe via Beloha. Tsihombe is approximately 48 km north of CSM and is the closest city with supplies and electricity.

On the morning of Tuesday, December 1, we met with Yves Etienne Rakotoarison, *Chef de Reserve Special de Cap Sainte Marie*, and his wife. Yves accompanied us out to the reserve and introduced us to his staff. Our four-day journey had taken us 1358 km southwest of the capital. CSM has four rangers that watch and work on the 1750 ha reserve: Jean Claude Limberaza, Andry Serge Randrianandrasana, Rampanarevo Monja and Justine Manahirana. Yves was kind enough to let us stay in a two-room ANGAP building, in the small Antandroy village of Befeha, for the duration of the study. These living accommodations were, thankfully, a great improvement over the tent in which I had expected to live for six months. The following day was spent exploring part of the reserve. There is an old, nonfunctional lighthouse that is being maintained there and it serves as a historic landmark for the area.

Fort Dauphin (December 3–4, 1998):

We picked up Yves in Tsihombe and headed for Fort Dauphin. Fort Dauphin or Taolagnaro, as it is called by the Malagasy, is the closest major city (pop: 25,000) to CSM with an airport and a bank. It is approximately 220 km east and is part of the moister tropical zone of eastern Madagascar. We went to Fort Dauphin in order to meet with Martin Nicole, a biologist from ANGAP based out of Fianarantsoa, and to pick up a few provisions that we had not gotten in Tana. I had originally contacted Martin in October before coming to Madagascar, and it was Martin who told Yves about my study.

CSM (December 5, 1998, to January 11, 1999):

After having looked at several different areas on the reserve I chose a study site 2 km east of the lighthouse, which the rangers referred to as the “grotto” because of the numerous small caves found there. The site is 1 km wide and extends back 3 km from the Indian Ocean. It was divided into six zones based on vegetation and substrate differences. For the most part, vegetation at CSM is dwarfed due to the strong winds and salty mists blowing off the ocean. Martin Nicole said to me “CSM is the only place you can find tortoises in the canopies of the trees”—and this is true!

We searched the zones daily from 7 A.M. to noon, and from 2 P.M. to 5/6 P.M. These times were peak-activity periods (especially on sunny days). Tortoises were hard to find when it was extremely hot. They take refuge in the shade under vegetation, which leads to diminished returns per unit effort. Conversely, cooler overcast weather led to extended activity patterns provided it did not stay cool for several days in a row. Data were recorded on tortoises from hatchling size (Carapace length (CL) = 4.6 cm; Weight = 20 g) to adult (CL = 36 cm; Weight = 10 kg) and each individual was marked with a unique notch on the marginal scutes to distinguish it. We would, on average, find between 20 and 25 tortoises per day. Radio transmitters were attached to four females and one male. The tortoises were located weekly so as to collect home range and habitat utilization data. Two small data loggers that recorded temperatures hourly were placed at the study site and at the house in Befeha. Rainfall was recorded daily in Befeha. In addition data loggers were attached to two tortoises to

obtain ambient tortoise temperature.

I spent Christmas and New Year's Eve on the reserve, and just before Christmas Jean Paul was to take the vehicle back to Tana for two weeks, for servicing and paperwork associated with its recent transfer. Rollande and I had to walk 16 km to and from the reserve each day in addition to our regular hiking (unbeknownst to us this routine was to continue for the rest of the study and this ultimately led to my 33-lb weight loss). Ron Nussbaum, Curator of Reptiles and Amphibians at the University of Michigan Museum of Zoology, visited me on December 22–23. We discussed survey locations and the possibility of doing a reptile and amphibian inventory of CSM. By January 11 (just over one month) we had marked and recorded data on 520 individual tortoises.

Fort Dauphin (January 12–16, 1999):

This was our second trip to Fort Dauphin. The car needed to be fixed even though it had been in Tana for three weeks. I needed new provisions for the survey and provisions for Rollande. Rollande had to see a dentist because one of her teeth was bothering her. I had a chance to meet with Mark Fenn, the WWF Technical Advisor for Madagascar Southern Programs. Mark and I discussed survey locations and coordinated some of my survey sites to previous WWF survey sites. This way I can get data on vegetation and WWF can get data on tortoise populations. Mark was very helpful with everything and was a major unexpected asset for my study.

Tortoise Range Surveys (January 17 to February 28, 1999):

The survey was supposed to start January 2 but the Range Rover was delayed in Tana and therefore we did not start until mid-month. Rollande stayed at CSM and continued to collect data. Jean Paul and Jean Claude accompanied me on the survey. Yves gave Jean Claude permission to help me with the survey. Without his knowledge of the area and without his communication skills the survey could not have been done. Cap Sainte Marie was considered to be Site 1, and since this was the main study site, the most complete information was gathered there.

Three to four days were spent at each of the remaining six survey locations. Two temporary line transects (a minimum of about 1 km in length) were made through tortoise habitat at each site. The transects were marked with flagging tape, laid out with a compass bearing 45° NE, and were at least 1 km apart. The construction of a transect line involved three people (one of whom was a local guide) and took on average anywhere from two to seven hours, depending on the density of the vegetation. Each transect was run twice and with the exception of one, they were run during sunny weather. The morning period was from 6:45 A.M. to 10:00 A.M., and the afternoon period was from 3:30 P.M. to 7:00 P.M. In addition, at sites where possible, twelve to fifteen tortoises each had a 0.5 ml blood sample taken.

Site 2: Lavanono

The Lavanono site is about 30.4 km north west of Cap

Sainte Marie and was situated below the *falaise* (cliff) adjacent to the Indian Ocean. Largely *Euphorbia stenoclada* and *Opuntia* sp. characterized the habitat here. The soil here was very sandy and light in color. This was the easiest of the sites to survey since the vegetation was not very dense or high. Jean Claude and I surveyed this site by ourselves. At all the other sites we hired a guide to assist us. We found twenty-eight tortoises on the survey and another fifteen tortoises for blood samples.

Site 3: Ankirikirika

The Ankirikirika site is about 49 km northwest of Lavanono. It is the sacred forest of the kings. To enter it we had to undergo a traditional ceremony that involved the guardian of the forest and a bottle of rum. This area contains very beautiful gallery forest characterized largely by *Alluaudia ascendens* (a species of Didiereaceae). We hired a local guide named Dede. We found seventeen tortoises on the survey and another fifteen tortoises for blood samples.

Site 4: Nisoa-Ambony

The Nisoa-Ambony site is about 65.2 km northwest of Ankirikirika. This site was the first of three sites on top of the Mahafaly Plateau. I hired a local guide by the name of Longosoa. Longosoa turned out to be a true bushman. He knew how to find water-bearing tubers by following vines as well as reservoirs in trunks of trees and in stones. In dry areas natural water sources are important to survival. Longosoa also was able to find honey in wild bee and wasp nests. On January 31 we found the first tortoise nest. It had two eggs in it and a third appeared to have been predated. We found thirty tortoises on the survey and another seventeen tortoises for blood samples.

Site 5: Lavavolo

The Lavavolo site is about 20.5 km northwest of Nisoa-Ambony. At this site we were literally tripping over tortoises. There were three in the campsite alone when we arrived. We hired a local guide named Dede—or as we called him “Dede II”. The first transect was located on top of the *falaise* in the red, sand-floored *Alluaudia* sp. forest. The second transect site was on the *falaise* limestone in dwarfed shrub forest scattered with *Alluaudia comosa*. During heavy rains the tortoises were observed drinking from small ephemeral rivers that ran down from the plateau. We found forty-one tortoises on the survey and another sixteen tortoises for blood samples.

Site 6: Vohombe

The Vohombe site is about 27.9 km north of Lavavolo. Both transects were located in mixed forest with red sand or rock, on top of a very steep portion of the *falaise* known as Hatoke-aliotse. The guide we hired here was named Tete and he showed us how to eat cactus pads to obtain water. A total of ten hollowed-out tortoise shells were found in this area. A local villager told us people from Andovokampy (south of Tulear) came sometime between July and September by pirogues (small canoes with a sail) to collect tortoises. We found twenty-four tortoises on the survey and another fourteen

tortoises for blood samples.

Site 7: Lac Tsimanampetsotsa

The Lac Tsimanampetsotsa site is about 41.3 km north of Vohombe. We spent five days at Tsimanampetsotsa as the result of problems with one of two guides and the Range Rover being stuck in the mud in the lake. The *falaise* here is quite low, not very steep, and runs just to the east of the lake. One transect was made in the forest above the *falaise* while the other was made on the *falaise*. The habitat was similar to that seen at the previous three sites and did not seem degraded, although there seemed to be a lot of zebu on the reserve. We found one tortoise on the survey and only six tortoises for blood samples. There were more dead tortoises than live ones: seventeen used for food and one dead of unknown cause. Raoul, our guide, told me that on Christmas Day ten people (who arrived by pirogues) showed up and took six to eight tortoises each in bags. He said they would come on most holidays and he said they came from Tulear, Ankilibe, and Andovokampy. This site turned out to be quite a disappointment as to tortoise numbers. Just four years earlier Richard Lewis (WWF) reported this as part of the “core area of high density” and had tortoise abundance estimates of 262/km² in this area.

Other Sites

Two additional sites were visited to collect blood samples and as possible survey sites. The first site was a 20 to 25 km stretch of road east of the coastal village of Beheloka (along the road that runs between Beheloka and the intersection of National Route 10). I first visited this site in late November 1997 and found twenty tortoises in a two-day period. This time the site was visited once, briefly, on the way to Nisoa-Ambony on January 27. Over a 22-km distance between 4:20 and 6:30 P.M., five tortoises were found. We returned to the site for a more thorough examination on February 15, and only found one tortoise. Transects were not made because of the limited number of tortoises compared to 1997. Upon later talking to John Behler (Wildlife Conservation Society) it seemed that villagers in the area had sold tortoises to people in pirogues from Tulear. In addition, there was a report of a Japanese man within the last year making regular visits to the area to buy tortoises to be shipped back to Japan.

The second site was near the village of Mahaleotse, 63 km East of Tulear on the Onilahy River and represented the most northern range location examined. M. Victor Rasotonirina, *Chef de Circonscription of Eux et Forêt Tulear*, suggested the site as a possible location. The Range Rover was broken and being repaired in Tulear so Jean Claude and I had to rent a motorcycle in order to get out to the village. We searched for tortoises in the spiny forest on both the north and south sides of the river with no avail.

While in Tulear we were able to get new supplies for Rollande and I had a chance to meet with Hermann Petignat, botanist and owner of the Arboretum d' Antsokay. Mr. Petignat is a specialist in the xerophytic fauna of southwestern Madagascar. He was kind enough to identify several plant specimens for me that had been collected from CSM and along

the survey.

Fort Dauphin and the Return to CSM (March 1–6, 1999):

After spending ten days in Tulear instead of three as planned, I booked a flight to Fort Dauphin in order to meet with Mark Fenn. Jean Paul and Jean Claude were to return to CSM with the Range Rover once it worked again. Mark was kind enough to provide me with a WWF vehicle and driver to take me back to CSM and then to the Andohahela Nature Reserve near Fort Dauphin. Unfortunately, a six-hour trip turned into a five-day excursion. The road between Ambovombe and Tsihombe was in bad condition because of recent rains. Our vehicle hit a “puddle” and died in a meter of water. The next morning we swam to “shore” and I walked 15 km to Tsihombe to get help. Yves found me a truck to pull the vehicle out but unfortunately this vehicle also got stuck. The following day we found another truck to pull out the WWF Land Rover. The engine had seized and the Land Rover no longer ran. I contacted WWF to get the driver and the car, and I continued on to CSM with a water delivery truck.

CSM (March 7 to April 1, 1999):

Rollande had found another 300 tortoises while I was gone bringing our total to 800 tortoises. She, along with Andry, had found the first nesting female at CSM on February 13. I sent Rollande for a four-day vacation to Tsihombe. I then checked the radioed animals. Female #242 with a data logger had moved over 4 km east of the study site by her last location. We did several searches over the next month and a half but did not find her. Female #76 had moved 2.42 km west of the study site most likely in search of a nesting site. The remaining tortoises stayed within their smaller home ranges within the study site. We found several nest locations thanks to the villagers who knew I was looking for eggs and would report any nesting female they came across. By end of March, I shifted most of the focus to locating as many nests as possible.

I had a pleasant surprise on Sunday, March 14, when John Behler and Bill Holmstrom of Wildlife Conservation Society showed up for an unexpected visit. John and I had met at the Herpetology meetings in Guelph, Ontario, Canada, nine months earlier and it was John who originally told me about tortoises near Beheloka. John and Bill were on a two-week trip across spiny forest habitat looking at radiated tortoises and spider tortoises. I took them out to the reserve to see tortoises but we never made it that far since there were so many tortoises to weigh and measure along the road. That night they pitched their tents outside my house in Befeha. We had a nice dinner and talked late into the night about turtles, research, radio tracking and the latest news. The following morning we all went out to my study site. John and Bill helped me process tortoises and much to their surprise they even found a radiated tortoise walking on the beach near the ocean. John had heard the same stories about tortoises being collected at Beheloka and at Lac Tsimanampetsotsa. Bill was kind enough to recalibrate one of my data loggers with his laptop computer before we headed back to Befeha. John and Bill were off to Faux Cap and Fort Dauphin by late afternoon.

I planned one last trip to Fort Dauphin since I had promised Mark Fenn that I would go to Andohahela to coordinate my field techniques with those of an ANGAP researcher. It also gave me a chance to collect blood samples from tortoises in the eastern extreme of the range.

Fort Dauphin and Andohahela Nature Reserve (April 2–13, 1999):

Because the car did not work since its return from Tulear, I had to take an hour's ride into Maravato by oxcart in order to find some transportation to Fort Dauphin. Luckily for me I ran into Steve Lellelid. Steve is an American from Minnesota who grew up in Madagascar. His father was a Lutheran Missionary. Steve lives in Tsihombe and currently is Director of LWF_{DMD} 973 – BIJO/FLM, an organization that builds large water basins for villages, schools and churches. Steve said he would send the truck that collects shells back from Tsihombe to tow the Range Rover. Saturday morning after the weekly market in Marovato, the shell truck pulled the Range Rover back to Tsihombe to be fixed. Once the car was fixed Jean Paul was to take it back to Fanamby in Tana. Jean Claude and I missed the taxi-brusse that evening. The next morning the regular taxi-brusse to Fort Dauphin was canceled. We ended up taking a truck. I spent Easter in the back of this truck with twelve turkeys, six chickens, ten sacks of rice, a barrel of smelly dried fish, and a dozen Malagasy. We unloaded in Ambovombe and spent the night with friends of Jean Claude. In the morning we caught a taxi-brusse to Fort Dauphin.

I briefly talked to Mark upon my arrival. In addition to his work for WWF, Mark runs a Malagasy Ecology Training Center where other researchers and I can stay while in Fort Dauphin. He told me that another researcher from England was looking for me. I met Susan O'Brien, a colleague Ph.D. student from the Institute of Zoology in London. Sue wants to do a harvest and biological study on radiated tortoises, which she plans to start in October. This was a good opportunity to talk and collaborate on ideas. Sue and I rented a car and driver to take us to Andohahela. Andohahela is a nature reserve east of Fort Dauphin. This gave me a chance to meet with Vola (the ANGAP researcher) and take blood samples. And it gave Sue a chance to see some wild tortoises. Specifically we went to the village of Ihazafotsy where Vola was working. Vola showed us around and she showed us the grid system she used for censusing tortoises. She had found twelve tortoises during her two-month study. Steve Lellelid also has a house in Fort Dauphin right next to the ecology center. He was kind enough to give me a ride back to Tsihombe.

CSM (April 13–27, 1999):

The last two weeks were difficult. Morale was at an all-time low. Rollande was tired, I was tired and ready to go home and see Krista, and we were having problems over water with one of the villagers. We were trying to find as many nests as possible. We found that tortoises lay from one to five eggs per nest. One of the most interesting observations to come out of the many man-hours of searching for tortoises was that of female #56. Not only did I witness her complete nest-

ing behavior, but four months earlier I had also observed her mating behavior with male #57. As far as the transmitter animals; female #76 lost her transmitter near the lighthouse, but I think we will find her next season back in her home range. Female #242 with the data logger was never found again, so I put a new data logger on Male #37. By April 26, the last day in the field, we had gathered data on 1030 individual radiated tortoises, 60 spider tortoises, and 14 nests at CSM.

Return to Antananarivo and the U.S. (April 28 to May 11, 1999):

Unfortunately no vehicle came back from Tana to pick us up so I walked 48 km into Tsihombe on April 23 to make arrangements with Steve Lellelid to pick up Rollande and me and all the equipment, and to take us to Tsihombe to catch a taxi-brusse. From here I made arrangements for us to take a taxi-brusse from Tsihombe to Tulear and then a taxi-van from Tulear to Tana. The taxi-brusses in Madagascar try to squeeze as many people, chickens, goats and baggage as humanly impossible into as limited a space as possible. Taxi-vans cost more but are worth it because they limit the number of passengers to the number of seats in the van.

In Tana I left the blood samples (waiting on U.S. Import Permit) with WCS, I confirmed my plane tickets, I picked up some of my mail, and relaxed after six months of intense field work. I planned to return to Madagascar in January 2000 for five more months of research.

Part 3: The Second Field Season

When: January 5, 2000 to June 6, 2000.

Where: Antananarivo and southwest Madagascar: Tsihombe, Maravato, Befeha, **Cap Sainte Marie (CSM)**, Ambovombe, Ambosary, Fort Dauphin.

Purpose: To collect ecological data (especially information on reproductive biology) of wild radiated tortoises (*Geochelone radiata*) for the purposes of conservation and in fulfillment of Ph.D. research.

Funding: The trip was financed by Conservation International, Washington, D.C.; Wildlife Conservation Society, New York; George Mason University, Fairfax, Virginia; Focal Ind., São Paulo, Brazil; Chelonian Research Fund, Lunenburg, Massachusetts; and Fanamby, Antananarivo, Madagascar.

Antananarivo (January 5–20, 2000):

The time spent in Antananarivo was largely for logistics and correcting last minute details in preparation for going into the field. Rollande Ravolanaivo, my field assistant, and I gathered supplies for the trip to CSM. I worked on getting a visa extension with Serge Rajaobelina (Fanamby). Ambassador Zina Andrianarivelo at the Embassy of Madagascar in Washington, D.C., had been instrumental in getting this process started. I had several meetings with ANGAP to obtain a new research permit, and also met with ANGAP Director-General Noël Baptiste Randrianandianina to discuss research at CSM. January 16–18 were spent at Andasibe (Perinet) in workshop meetings with CI Madagascar and CI Washington before returning to Antananarivo. Arrangements were made to

have blood samples I collected last year hand-carried to the U.S. by Dr. Peter Kristensen of CI. They were brought to the States and sent to Dr. Trip Lamb at East Carolina University for analysis. Fanamby supplied the same vehicle along with a new driver: Roger Randriambololona. Steven Lellelid, a friend from Tsihombe joined us for the trip. The car left for CSM on the afternoon of January 20 with a replete roof rack.

Trip to Cap Sainte Marie [CSM] (January 20–26, 2000):

We took an alternate route back to CSM since the bridge over the Onilahy at Tangabory was under repair and only open at limited times. Because of our late start we only made it to a hotel in Amboitra the first night. The next morning we drove to Fianarantsoa where we filled the gas tank and our two 50 liter jerry cans. At Ihosy we drove south on National Route 13 instead of continuing to Andranovory and taking National Route 10 south. The night was spent in a Lutheran mission house in Betroka and we made arrangements to have the roof rack, which had crumbled under its own weight, welded and reinforced. Luckily, the route was fairly dry. Despite this we ended up sleeping in the car one night and being stuck in mud and lake-like puddles twice before arriving in Ambovombe (the Antandroy “capital”) on the morning of the 25th. We left for Tsihombe by late afternoon having spent the better part of the morning waiting for our supplies and equipment to dry and for the puncture in the gas tank to be repaired. We dropped Steve off and spent the night at his place in Tsihombe before continuing to CSM. Without Steve’s help and directions we probably would not have made it.

CSM (January 26 to March 3, 2000):

It was good to see Jean Claude, Andry and Rampanarevo (the three CSM Rangers) again. Rollande and I once again stayed in the two-room ANGAP building in Befeha (8 km east of the study site). As was the case last year, we marked new animals and collected data on tortoises found the year before. In particular, we relocated radioed females and fitted them with new transmitters. Eight new tortoises were added, for a total of eleven females, which could be captured every two weeks for X-raying. X-rays were taken to determine reproductive parameters such as clutch size, clutch frequency, interval between clutches and egg size. In addition, female tortoises of reproductive size found while collecting data were also X-rayed (normally 3–4/day). A portable MINXRAY HF80 X-ray machine was brought in the field. Initially it was set up in a tent at the study site, but this proved too hot, and the strong winds at CSM kept blowing the tent over. I commissioned the construction of an Antandroy hut made of sisal, straw and corn and this proved to be an excellent place for doing field radiology. Power for the machine was provided by a solar powered battery connected to a power inverter. The X-ray films were developed at night in a makeshift darkroom in the back of a church building some fifteen minutes from our two-room shack.

We recovered the data logger from the nest of female #967 and much to our surprise, also found four new hatchlings. Of the fourteen nests from last season, this one and two others

still contained viable eggs. The rest had either hatched or had perished. The eggs appear to have an incubation time of approximately 10 months. In early February we ran a transect line through the study site to obtain transect data which can be compared to the other six transect sites established last year throughout the range.

Although Mozambique and northern Madagascar had made world news for the severe flooding that was taking place, southern Madagascar was under a severe drought. February 1999 had 792 mm of rainfall at CSM as compared to February 2000 with only 1.95 mm. We had strong dusty winds, remnant of the many cyclones that hit the island this year. The dirt bike that Serge had sent a month earlier had arrived from Antananarivo. Unfortunately, because of all the sand at CSM, the only one experienced to ride it was Jean Claude.

Fort Dauphin (March 4–9, 2000):

Rollande, Jean Claude, Andry and I walked two hours from Befeha to the Saturday market in Marovato to catch a taxi-brusse into Tsihombe and eventually another to Fort Dauphin. The car had been with us for two weeks before being sent back to Antananarivo for use in another project. Unbeknownst to us that would be the last we would see of the car for the rest of the study. The purpose of the trip to Fort Dauphin was to pick up new provisions, including cooking gas, and to exchange money.

CSM (March 5 to April 13, 2000):

Retrieving eleven tortoises for X-rays biweekly provided much work for Rollande and me, so I decided to hire a local villager to help us. This turned out to be no easy task. The Antandroy “fady” (taboo) against touching or eating tortoises was quite strong. Most people would not work for me since I handled the tortoises. I finally found someone but he only lasted an hour in the field and quit when one of the tortoises he was carrying urinated on him. After much discussion back and forth we did find someone else — Fitsangana. Fitsangana was a tall, skinny man who agreed to work with me only if I bought him a goat at the end of the project. The goat was sacrificed to remove the “fady” of working with tortoises. He always met us on the path outside the village on the days we needed his help so that the other villagers would not know what he was doing.

I was lucky to find male #37 and remove the ambient temperature data logger that had been affixed to him a year ago. His transmitter had malfunctioned a few weeks before I was ready to remove it and the data logger. By the end of March the rains had come and we got some relief from our drought. As a result of this year’s drought, a higher incidence of juvenile mortality (especially in small tortoises under 9 cm), was observed.

In 1999 the construction of a new ANGAP office and residence for the *Chef de Réserve* (who had been terminated in February) was started in the village of Bevazoa (6 km south of the study site). We arranged to live in the house for the last two months of the study. Advantages of this were that it was 2

km closer, the darkroom was in the same building, dust and water did not enter the building, and the water basin was right next to the house.

Fort Dauphin / Antananarivo (April 14–20, 2000):

I had to make an unexpected trip to Antananarivo to meet with officials at the Ministry of the Interior regarding my visa extension, while Rollande remained and collected data. The trip to Tana also gave me the chance to meet Matthew Hatchwell, the director of Wildlife Conservation Society in Madagascar, and Herilala Randriamahazo regarding CSM. I traveled to Fort Dauphin via taxi-brusse or private car and then by plane to and from Tana.

CSM (April 21 to May 22, 2000):

We continued to collect data and X-ray tortoises. With only about a month left of the study, things were starting to break down and go wrong. The cable to the battery supply for the radio broke; a zebu had snapped the cable to the solar panel; our cooking stove needed rescue; the X-ray machine was acting up; and our water and food supplies were being pilfered during the day when we were working in the field. Despite this we survived the last couple of weeks and managed to mitigate tension with the thoughts of being close to an end and returning to our loved ones. Mark Fenn (Technical Advisor, Southern Madagascar Programs) and Richard Carroll (Director of African Programs in D.C.) from WWF brought provisions. This was the first time I met with Mark this year. Maude Plancheneau and Philippe Chorier of the *Association Française Volontaire du Progrès* (French “Peace Corps”) based out of Tsihombe came to the reserve on a number of occasions to help with the work. They were also kind enough to bring some wonderful French food and provided good company.

Since there was no car I made arrangements earlier with Matthew Hatchwell and Herilala Randriamahazo at WCS to send one to take us back to Tana. Herilala was going to direct a conservation program for WCS at CSM in association with ANGAP and wanted to see the area and meet the people. He arrived with the car and driver on May 16. We arranged a goat barbecue / research-finishing party, which was held on May 19. We encountered a timing problem for the return to Tana. Herilala had to be in Tulear by May 22 for a symposium on biological research in southern Madagascar, at which I was to deliver a talk on my radiated tortoise research. However, I had to remain until May 22 to take the last set of X-rays. We decided that he would leave for Tulear on May 20 with as much of our supplies as could be spared and Rollande would go along to present our paper. The remaining data loggers were collected and all transmitters were removed by May 22. I then went to Tsihombe-Fort Dauphin with Maude and Philippe and caught a plane back to Tana.

Return to Antananarivo and the U.S. (May 22 to June 6, 2000):

A few days were spent relaxing in Fort Dauphin after the long field season. Mark had a nice barbecue on May 27, then I flew to Tana on the 28th. In Tana I repacked my bags,

picked up a few gifts, and said my good-byes to Rollande and other acquaintances in the capital. By chance I joined up with Ron Nussbaum (Curator of Amphibians and Reptiles at the University of Michigan Museum of Zoology) who was also on his way back to the States. I am grateful to him for his supportive discussion. The Air Madagascar flight left for Paris on the evening on June 6. Thirty hours later I was back in Washington, D.C.

By our last day in the field (May 22), we had gathered data on 430 new radiated tortoises, 400 recaptured radiated tortoises, 25 new spider tortoises, 6 recaptured spider tortoises, 12 nests, and 200 X-rays. The total number of radiated tortoises from which data were collected from 1998 to 2000 was over 1,430 animals.

Acknowledgments

I would like to thank Russell A. Mittermeier (Conservation International), John Behler (Wildlife Conservation Society), Gerard Arnhold (Focal), Claudia Hamblin-Katnik and the Department of Biology (George Mason University) and Anders G.J. Rhodin (Chelonian Research Foundation) for their financial support of this project. Thanks to Serge Rajaobelina (Fanamby) for providing a research vehicle and a driver.

Many thanks to Rollande Ravolanaivo, my research assistant, for her countless hours of walking when the Range Rover was yet again not available. The following professors at George Mason University and Hofstra University were instrumental in reviewing proposals and offering advice: Carl Ernst, Lee Talbot, Geoffrey Birchard, Luther Brown, and Russell Burke. Thanks to Krista Johnsen Leuteritz for reviewing countless papers and taking care of proposals while I was in Madagascar.

I thank also those persons who gave me valuable insight and preparatory advice for working in Madagascar — Ron Nussbaum (University of Michigan), John Behler (Wildlife Conservation Society), Steve Goodman (Chicago Field Museum), Gerald Kuchling (University of Western Australia), James Juvik (University of Hawaii), Joanna Durbin (Durrell Wildlife), Lee Durrell (Durrell Wildlife), Isabel Constable and Chris Raxworthy (University of Kansas). I greatly appreciated the hospitality and assistance of Yves Etienne Rakotoarison, *Chef de Reserve Special de Cap Sainte Marie* and his staff, and I especially want to thank Jean Claude Limberaza and Andry Serge Randrianandrasana for their hard work and enthusiasm during the research. I appreciate the advice regarding field X-rays I received from Jeff Lovich and Cathy Myer.

Much logistic and technical help was provided in Madagascar by Martin Nicole (ANGAP), Mark Fenn (WWF), Steve Lellelid (LWF_{DMD}), Jean Gabriel Ratalata (Engineer), Brigitte Randrianaridra, Maud Plancheneau and Philippe Chorier (AFVP), Herilala Randriamahazo (WCS) and Matthew Hatchwell (WCS). I am forever grateful to these people for their assistance. Last but not least I would like to thank Tom Akre, and Tom Wilson, fellow graduate students, for their encouragement.

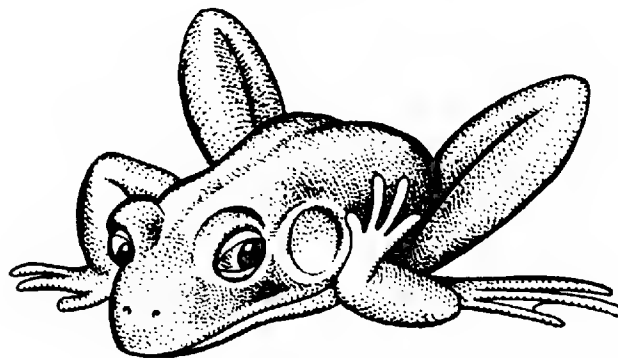
The Tympanum

Fellow CHS Members:

I have just returned from a visit to one of the best looking reptile exhibits I've seen — a privately run reptile zoo where all the animals are obviously well cared for. I'm speaking about the Serpent Safari in Gurnee Mills, just north of Chicago.

I'm reporting my personal observations and findings, not speaking for the CHS and with no affiliations with the Serpent Safari, because I remember a letter printed in the Tympanum column of the February 2000 *Bulletin* that I feel did an injustice to this educational facility. The negative reaction expressed therein was definitely not what I came away with.

During a conversation with owner and reptile expert Lou



Daddano I learned that he has a veterinarian working with his animals who is well known and nationally respected in this field. He has also been working with an ex zoo curator as a consultant on a regular basis.

I am personally acquainted with all of these men and their dedication to quality herp care is unquestioned. I mention all this to show how well these animals are taken care of. I only wish I had three equally knowledgeable experts in human physiology to monitor my lifestyle.

As an independent voice I encourage each of you to visit the Serpent Safari and judge for yourself. **Don Wheeler, 2705 Sunset Trail, Riverwoods, Deerfield IL 60015.**

Unofficial Minutes of the CHS Board Meeting, May 18, 2001

Vice-president Lori King called the meeting to order at 8:07 P.M. Board members Dan Bavirsha, Rich Crowley, Linda Malawy and Jack Schoenfelder were absent.

Officers' Reports

Recording Secretary: Emily Forcade distributed and read the minutes of the April board meeting. Corrections were made and the minutes were accepted.

Treasurer: Greg Brim distributed the treasurer's report for April 2001. The March statement was amended. Our income now exceeds our expenses for the year to date. Greg asked if someone had information about our insurance. Steve Spitzer said he had renewed it. Greg will issue the check. Steve clarified why we had two phone bills. The original phone line is on one bill. This line forwards the calls to the voice mail phone line, which is on the other, more costly bill. Gary Fogel suggested that some of the funds from the checking account be transferred to an interest bearing MMA. The group agreed. Greg Brim will write checks for the recipients of the 2001 grants.

Membership Secretary: Mike Dloogatch distributed the membership report. The current membership is 811, down from 830 in April. Mike had hoped for higher renewals. Emily Forcade asked about phoning the members who haven't renewed to request that they renew. Mike said that this had been tried, but had always fallen through. Mike presented a resolution for the board to vote on which is required by the Post Office in order to qualify for Periodicals Mailing Privileges. Resolved: That a copy of each issue of the *Bulletin of the Chicago Herpetological Society* shall be sent to each member of the Chicago Herpetological Society and that \$22 of each member's annual dues shall be for a subscription to that publication. Mike made the motion and Char Haguewood seconded

it. The motion passed unanimously.

Vice-president: The June meeting will be Show and Tell. At the July meeting Dr. Martin Wikelski will discuss physical changes in Galapagos marine iguanas (*Amblyrhynchus cristatus*) due to El Niño. The August meeting topic has not yet been determined.

Corresponding Secretary: Steve Spitzer asked for clarification about whom we are referring callers to for questions about specific animal groups. Mike Dloogatch is currently the referral source for snakes. Dr. Cheryl Roge is the source for lizards. Steve will consult her about her continuing interest in doing this as a CHS member.

Steve distributed a draft of a letter to Chris Marenovicz, the Superintendent of Conservation for the Forest Preserve District of Cook County. This letter, which addresses our concerns about the 2001 Salamander Walk, included the content discussed at the April board meeting. Lori said she liked the letter, which she found discretely worded. Mike Redmer said he liked it as well. He said it demonstrated our willingness to engage the District as a partner. He also thought that it was balanced with a forceful statement about how we viewed the way certain administrators handled the Salamander Walk. Mike Dloogatch suggested the letter be published in the Tympanum section of the *Bulletin* after it has been sent. Lori said that our main goal re the letter is to continue to do the Salamander Walk. The way that certain Park District personnel dealt with Ron Humbert reflects a disregard for their constituency. Mike Redmer wondered about offering funds to offset the cost of the necropsies of the specimens. Most of the group felt that offering funds at this juncture skewed our message. Steve suggested that we include what was said to Ron, identify the individual, and say we'd like to have a meeting with the Superintendent to discuss it. This doesn't call for an answer

but asks for a specific form of collaboration. Steve added that we could also ask them if we need to go through any procedure to get the pathology results on the specimens, and to let us know what that procedure would be. The group concurred on these points. Steve will re-draft the letter for the board to review.

Publications Secretary: Mike Redmer reported that our website received a lot of hits around ReptileFest, but since then the numbers have been small. There was a discussion of how to have the website reflect the vitality of the organization. Mike will take the lead on this with Chris Lechowicz.

Mike Redmer wished to correct the way his ideas about the Illinois Endangered Species Protection Board were presented at the last meeting, from which he was absent. There was a House Bill proposing to eliminate the Board. Several days later the bill was killed but there was a rider to the legislation that said that while the Board will be kept going, there is a sunset clause. So for now there is no issue. Steve Spitzer said that he would send the letters we discussed at the last meeting to a select few state agencies, since these letters are still pertinent.

Standing Committees

Grants: The grant recipients have been selected and will be published in the *Bulletin*. Mike Dloogatch made a motion to allocate an additional \$500 to the Grant program this year.

Greg Brim seconded the motion. After a brief discussion of the nature of the proposals, the vote in favor was unanimous.

Shows: Jenny Vollman said that the Special Olympics, which will be held on May 24 at the University of Chicago, has invited us to participate. Dan Bavarsha might be interested. We will be represented at the Members Nights of the Field Museum of Natural History on May 23–25. We have enough volunteers to exhibit. Pet Day will be held on June 23 at Wheaton Whole Foods. We are invited to participate. June 3 has been designated to be Pet Care Awareness Day. Several animal hospitals have invited us to participate in their programs. On June 10, Jackie Navarro, an animal educator, will appear at the Discovery Channel Store at the Schaumburg Mall. She is asking us to provide 6–8 animals she can use for demonstrations. Jenny will look into the organization she represents and bring the board more information. Mike Redmer said that the city is planning to unveil a Nature Walk at Navy Pier and they are asking some organizations to man a table for a day. He will be getting more information and he will put Jenny in touch with the organizers.

Chicago Wilderness: Tom Anton plans to attend the next meeting as our representative.

Ad Hoc Committees

Symposium 2001: Char said we need to approach breeders for the sale. Rich Crowley is talking to a number of smaller breeders to target them. Speakers continue to be added to the roster. Flyers will be prepared when the slate is set. Only six dry goods tables are sold, so we will also be contacting vendors. We may be able to put flyers into newsletters from other

societies. Discussion continues about how to organize events on Sunday morning.

Public Relations: Steve Spitzer said that Chris Matthews, Bob Herman and Betsy Davis want to be involved. Lori King said she would like to see publicity begin for the speaker at the May general meeting.

Picnic: There is nothing to report. No one has stepped forward to take charge of this.

Nominating Committee: The committee continues to look for a non-board-member to chair the committee.

Old Business

Mike Redmer reported that the final version of the frog call tapes is complete. It was distributed to the volunteers for this year's survey. Lang Elliot provided the frog sounds, but the narration was done locally. This was originally planned as a preliminary version but it turned out so well it will stand as the final version. It might be nice to play the tape as part of the general meeting.

Round Table

Thanks from all to Gary Fogel for opening his home to us for this board meeting.

The meeting adjourned at 10:05 P.M.

Respectfully submitted by Recording Secretary Emily Forcade

**THE
GOURMET
RODENT™**



RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(352) 495-9024
FAX (352) 495-9781
e-mail: GrmtRodent@aol.com

© All Rights Reserved

Herpetology 2001

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

RAINBOW WATER SNAKE ECOLOGY

D. R. Karns et al. [1999-2000, Herpetological Natural History 7(2):97-115] used trapping, radiotelemetry and mark-recapture techniques to study an assemblage of aquatic snakes in an extensive wetland meadow in Lake Songkhla, Thailand, in 1996 and 1997. The wetland meadow is dominated by the aquatic grass, *Paspalum vaginatum*, contains numerous small pools and drainages, and is crisscrossed by canals (klongs) and ditches. Anthropogenic features included ditches and fish enclosures of various types and these were important landscape elements. The rainbow water snake, *Enhydryis enhydryis* (Homalopsinae), a fish eater, dominated the snake assemblage (96.4% of 752 snakes trapped) and was the primary study species. Trapping and radiotelemetry showed that *E. enhydryis* exhibited differential habitat use, with the edges of klongs (39.2% of telemetric locations) and associated artificial fish bays (28.8% of locations) being heavily utilized compared to wet meadow pools, lakeshore, and town ditches. Short-term (8–19 days) radiotelemetric tracking indicated that *E. enhydryis* exhibited variable patterns of daily movement dominated by short distance moves (< 10 m) punctuated with longer distance movements of up to 350 m in a 24-h period. No significant difference was found between the daily distance per move of male and female *E. enhydryis*, nor between hourly diurnal and nocturnal movements. The two *Enhydryis plumbea* females monitored were relatively sedentary compared to *E. enhydryis* and were typically located in sheltered fish bays (50.5% of telemetric locations) and ditches (47.4% of locations). Hourly diurnal and nocturnal movements for *E. plumbea* were similar, but there was a borderline statistical difference. The authors also made limited observations on another homalopsine (*Homalopsis buccata*), one natracine (*Xenochrophis piscator*), and one uropeltid (*Cylindrophis ruffus*). All snakes, with the exception of *X. piscator*, were closely associated with the mud-root-tangle found along aquatic edges and made heavy use of anthropogenic landscape elements. The authors discuss the importance of temperature, water quality, water levels, and human activity for the population and community ecology of this tropical aquatic snake assemblage.

RESURRECTION OF *RANA SEVOSA*

J. E. Young and B. I. Crother [2001, Copeia (2):382-388] note that the taxonomic status of *Rana capito* is unclear. Allozymes were surveyed for *Rana areolata* and populations throughout the range of *R. capito*, including representatives of the three putative subspecies. Fixed differences were exhibited at two loci, supporting the separation of *R. capito* and *R. areolata*. The westernmost population of *R. capito*, in the range of *Rana capito sevosa*, could be diagnosed from the remaining populations of *R. capito*. These remaining populations exhibited no substantial genetic divisions. The authors recommend the resurrection of *R. sevosa* as a distinct taxon.

A NEW GENUS OF PITVIPERS

R. L. Gutberlet, Jr., and J. A. Campbell [2001, American Museum Novitates 3316] propose the new generic name *Bothrocophias* for four species of South American pitvipers which together comprise a distinctive clade. They note that the name *Bothrops campbelli* Freire-Lascano (1991) until now has been applied to two distinct species, both of which they place in the new genus. They restrict use of the name *campbelli* to the species that occurs on the western slopes of the Andes in Ecuador, and describe the species that occurs in the Chocoan rainforest of western Colombia as *Bothrocophias myersi*. The remaining two species of *Bothrops* that the authors place in the new genus are *B. hyoprora* and *B. microphthalmus* of the Atlantic slopes and lowlands of northern South America.

ATLAS OF PORTUGUESE HERPETOFAUNA

R. Godinho et al. [1999, Revista Española de Herpetología 13: 61-82] plotted records for the amphibian and reptile species of continental Portugal on maps using the 10 × 10 km squares of the UTM (Universal Transversal of Mercator) grid system. A total of 9394 observations were collected, of which 6485 records came from previous national atlases, 1790 from recent published and unpublished work, and 1119 correspond to new observations made by the authors and their collaborators. Overall, 31.0% of the records are presented for the first time in a national atlas. Remarkable new records include those for *Tarentola mauritanica* and *Blanus cinereus*, enlarging their known range into areas where they were not thought to occur. The authors present and discuss amphibian and reptile species-density maps.

ASIAN CORAL SNAKE RELATIONSHIPS

J. B. Slowinski et al. [2001, Herpetologica 57(2):233-245] performed phylogenetic analyses of the Asian coral snakes (Elapidae: *Calliophis* and *Maticora*) based on morphological and cytochrome *b* sequence characters, comparing them also to American coral snakes (*Micruroides* and *Micrurus*). Asian coral snakes fall into three major clades: (1) the tropical mainland species *C. beddomei*, *C. bibroni*, *C. gracilis*, *C. maculiceps*, *C. melanurus*, *C. nigrescens* and *Maticora*; (2) the Philippine *C. calligaster*; and (3) the northern tropical/sub-tropical mainland species *C. hatori*, *C. japonicus*, *C. kelloggi*, *C. maclellandi*, and *C. sauteri*. This last clade is closely related to the New World coral snakes. The authors conclude that these three clades of Asian coral snakes warrant generic recognition. They assign the genus *Calliophis* to the first clade and *Hemibungarus* to the second. They create a new name, *Sinomicrurus*, for the last clade. The pattern of relationships inferred in this study implies that the New World coral snakes are derived from an ancestor that dispersed from Asia into the New World, presumably over the Bering land bridge.

A NEW, CRITICALLY ENDANGERED GIANT LACERTID

M. Nogales et al. [2001, *Herpetologica* 57(2):169-179] describe the external morphology of a new giant lizard found alive on La Gomera Island (Canarian Archipelago), which had been previously described from subfossil bones. Adult size (SVL 135–190 mm) is comparable with the two largest living species (*G. simonyi* and *G. stehlini*) of the genus. It differs from the other species of *Gallotia* in the low number of temporal scales (21–27), presence of one elongate interprefrontal scale (linearly depressed in center) that is very infrequent in most of its congeners (small when it is present), having two distinctive lateral lines of small blue spots, and in having a blackish-brown dorsum and ventral parts ivory white. According to subfossil data, based on tooth morphology and body size, this lizard seems to correspond to the putatively extinct subspecies (*G. simonyi gomerana*). This taxon is sufficiently distinct to be treated as a full species, *G. gomerana*. Molecular data analysis from mtDNA sequences (Cytochrome *b* and 12S rRNA) indicate that *G. gomerana* is closely related to *G. simonyi* and *G. intermedia*. After prospecting 70 localities in La Gomera, we only found a very small and threatened population of this species in Valle Gran Rey, in the western part of the island and living in an area of less than 1 ha. A small population size (only six individuals are known) and a large number of feral cats in their habitat makes this lizard the most endangered vertebrate of the Canaries and Europe and one of the most threatened in all the world. The species is suspected to be on the brink of extinction, so conservation measures are urgently needed, including a captive breeding plan at Valle Gran Rey, close to the natural habitat.

PAINTED TURTLE GROWTH RATES

N. Koper and R. J. Brooks [2000, *Herpetologica* 56(4):421-432] report that growth rates of free-living juvenile painted turtles (*Chrysemys picta*) in Algonquin Park, Ontario, were positively correlated with air temperature during growing seasons between 1990 and 1996. To test whether this positive correlation was directly due to temperature or indirectly due to increased food availability in warmer years, they experimentally separated the effects of temperature and food on growth of 90 hatchlings from Algonquin Park. Hatchlings were provided with varied opportunities to thermoregulate through basking for 0–5 out of five days and were fed either to satiety or to about 60% of the amount required for satiety. Growth in the laboratory was positively correlated with basking frequency but not with quantity of food provided. Presumably, in this experiment, food was not restricted sufficiently in the lower food group to reduce growth. Turtles that never had basking opportunities ate significantly less (37.5%) than the amount eaten by turtles allowed to bask daily and 46.7% of the amount eaten by turtles allowed to bask four out of five days. Passage rate of food was faster in turtles that were allowed to bask. Passage rate may be one of the factors that contributed to the relationship between temperature and growth observed both in the laboratory and in the field.

LOUISIANA PINE SNAKE BURROWING ECOLOGY

J. G. Himes [2001, *Amphibia–Reptilia* 22(1):91-101] studied the burrowing ecology of twelve adult and nine juvenile Louisiana pine snakes, *Pituophis ruthveni*, during 1995–1997 in north-central Louisiana. Significantly more adult burrows connected to pocket gopher (*Geomys breviceps*) tunnels than did juvenile burrows, although a relatively high number of adult and juvenile snake burrows were blind-ended. Significantly more adult snake burrows were located in pine plantations and grasslands and significantly less were located in clearcuts than expected. Significantly more juvenile snake burrows were located in pine plantations than expected. Adult and juvenile snake burrows were located in areas that had relatively less leaf litter and canopy closure than expected. Excavation behavior by *P. ruthveni* was stereotyped and similar to excavation behavior by the bullsnake, *Pituophis catenifer sayi* and the northern pine snake, *Pituophis melanoleucus melanoleucus*.

HINGEBACK EXPLOITATION IN CAMEROON

D. P. Lawson [2000, *Chelonian Conservation and Biology* 3(4):722-729], from July 1995 to June 1996, conducted a survey of tortoise offtake by three villages in the Southwest Province of Cameroon, Africa. Two species of hingeback tortoise, *Kinixys erosa* and *K. homeana*, are locally sympatric in primary and selectively logged forest in this part of Cameroon, and both species are routinely harvested by local people. Tortoises are not actively hunted, but all individuals encountered are collected and consumed, or in the case of juveniles and neonates, kept briefly as pets. *Kinixys erosa* was collected in greater numbers than *K. homeana*, in agreement with subjective assessment of natural densities. Female *K. erosa* were taken most often, followed by adult male *K. erosa*, adult male *K. homeana*, juvenile *K. homeana*, adult female *K. homeana*, and juvenile *K. erosa*. More tortoises were harvested during the rainy season than during the dry season. *Kinixys* harvest patterns may reflect the history of forest disturbance. Estimated harvest for 85 regional villages suggests an annual harvest of almost 3000 tortoises, at least half of which are assumed to come from within nominally protected areas. *Kinixys* harvest in this small region of Cameroon illustrates the magnitude of unregulated exploitation for local consumption.

CENTRAL AMERICAN CAECILIAN SYSTEMATICS

J. M. Savage and M. H. Wake [2001, *Copeia* (1):52-64] report that new specimens and a new analysis provide the basis for systematic revision of Central American caecilians. They recognize seven species in the genus *Dermophis* (*oaxacae*, *mexicanus*, *gracilior*, *costaricense*, *glandulosus*, *parviceps* and *occidentalis*). Two species of *Gymnopsis* (*syntrema* and *multiplicata*), three of *Oscaecilia* (*osae*, *elongata*, and *ochrocephala*), and four of *Caecilia* (*nigricans*, *volcani*, *isthmica*, and *leucocephala*) occur in Central America. New information about the geology of the region permits reevaluation of the biogeographic history of the group. Data for specimens, distribution maps, and a key are provided.

Advertisements

For sale: Frozen rodents now available at the General Meeting! Just another good reason to come to the meetings at the Chicago Academy of Sciences Patty Notebaert Nature Museum. Assorted sizes of rats and mice. Call Rich Crowley at (708) 485-5705 for details and pricing.

For sale: rats and mice — pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, \$.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutritionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, \$.17 each; fuzzies, \$.24 each; hoppers, \$.30 each; weanling, \$.42; adult, \$.48. Rats: starting with pinks at \$.45 each, to XL at \$1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: <http://www.themousefactory.com>.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at \$20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: two large, custom iguana cages and accessories and one medium Neodosha cage. (217) 854-9356, or karen.blakeley@verizon.net. Delivery negotiable. [downstate IL]

For sale: several uromastix lizards available to good homes. Will sell individually, or with 90-gallon terrarium with/without oak bi-level stands. Available lizards range from adult Egyptian spiny-tail (*Uromastix aegyptius*) to juveniles of the same species. Also available are an African spiny-tail (*Uromastix acanthinurus*) and one of the same from Morocco. All captive-bred, seen by Dr. Stephen Barten, owned for several years by hobbyist, never bred. Call (630) 624-6153, leave message if unavailable. Will return all calls.

For sale: yellow-head reticulated pythons, captive-bred and hatched, 5-21-01, available in June, guaranteed feeding on rat pinks and fuzzies, sexing available, pics of parents if desired, already showing gold-yellow heads, \$150 firm. Available soon, standard corn snakes, '01 offspring, \$8. Any questions, please call Notah Howe, (614) 262-0970. E-mail: Jbrown4403@aol.com. [OH]

For sale: **Now taking reservations for c.b. 2001 aberrant garter snake offspring**. Following are expected to be produced this year: **Easterns** — Blais Flames (speckled, \$125 each, red & orange phase, \$50–\$125 each, peach phase, \$50 each); anerythrastics, \$175 each; hets, \$50 each; Florida blues (not *similis*), \$10–50 each; melanistic, \$35 each; erythristic (2 strains): erythristic × Blais flame & erythristic × melanistic, \$50–100 each. **Plains** — Snows (2 strains), \$375 each; hets, \$175 each; red-albino (double hets), \$150 each; albinos (2 strains), \$125 each — hets, \$50 each; anerythrastics, \$100 each — hets, \$50 each; possible het plains (66% chance of being het for albino, anerythristic or snow), \$35 each; normals, \$25 each/2 for \$40. **Red-sideds** — anerythristi, \$100 each (hets \$50 each & possible hets \$35 each); normals, \$25 each/2 for \$40. **Wandering** — het albinos, \$75 each; normals, \$25 each/2 for \$40, & more. Babies will be available starting in June, call for availability. Please call (919) 934-0110. E-mail: Sirtaliso1@aol.com
Website: <http://www.thamnophis.com/features/ScottFelzer>. [NC]

For sale: 2001 potential offspring; we have eggs and/or gravid females for the following species — hi-orange western womas; pastel hypo pyros; yellow anacondas; Argentine boas; Dumeril's boas; Brazilian rainbow boas; Amazon tree boas; apricot Pueblan milks. Babies due April through August. Call or E-mail for prices and availability. Mark Petros, Strictly Serpents, (847) 854-3259, E-mail: MLPserpents@hotmail.com.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL <http://www.herp.com/crc/> E-mail: crsafetie@aol.com.

Herp tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-mail: blove@cyberstreet.com.

Herp tours: Experience the Amazon! Road-ride in Costa Rica! See and photograph herps where they live, have fun doing it, make good friends and contacts, and best of all . . . **relax!** From wildlife tours to adventure travel, **GreenTracks, Inc.** offers the best trips led by internationally acclaimed herpers and naturalists. See our website <<http://www.greentracks.com>> or call (800) 9-MONKEY. E-mail: greentracks@frontier.net.

Wanted: Aberrant/unusual garter snakes. Scott, (919) 934-0110. E-mail: Sirtaliso1@aol.com. [NC]

Wanted: west Florida reptile collector would like to hear from other reptile collectors from all parts of the U.S. to trade, buy, sell reptiles of all types. Tony Picheo, 11080 lillian Hiway, Pensacola FL 32506, (850) 453-8133.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. — 1:00 P.M. or after 11:30 P.M. Eastern Time.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: <MADadder0@aol.com>.

News and Announcements

2001 CHS GRANT RECIPIENTS

The CHS Grants Committee is pleased to announce the CHS grant recipients for 2001. The committee consisted of Michael Dloogatch, Lori King and Michael Redmer. As is always the case, the number of applications exceeded the number of grants that could be awarded, and the final decision was a difficult one. Seven grants were awarded, in varying amounts, as follows:

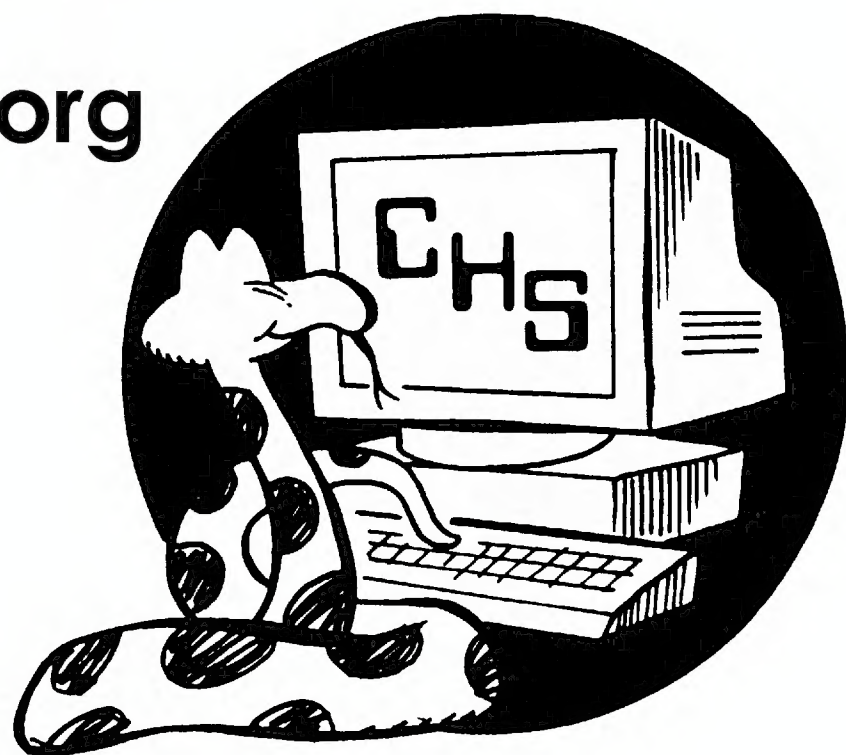
- Charles Knapp, Department of Wildlife Ecology and Conservation, University of Florida. "Ecology and Conservation of the Andros Iguana (*Cyclura cychlura cychlura*)," \$500.
- Jacqueline Schlosser, Department of Biological Sciences, University of Illinois at Chicago. "Effects of Habitat Fragmentation on the Genetic Variation of Northern Leopard Frogs and Western Chorus Frogs," \$500.
- Erin Casey, Department of Biological Sciences, Eastern Illinois University. "Population Differentiation and Biogeography of *Desmognathus monticola*," \$250.
- Matt Gifford, Department of Biology, University of Texas at Tyler. "Genetic Variation in the *Ameiva chrysoleuca* Species Complex (Sauria: Teiidae): Taxonomic and Biogeographic Considerations," \$250.
- Kerry A. Hansknecht, Department of Biology, Central Michigan University. "Timing, Frequency, and Duration of Cold-water Foraging by the Northern Water Snake (*Nerodia sipedon*)," \$250.
- John P. Levell, NorthStar Herpetological Services. "A Preliminary Examination of Sexually Dimorphic Head Coloration in Blanding's Turtle, *Emydoidea blandingii*," \$250.
- Lacey D. Loudermilk, Undergraduate, Lee University. "Skeletochronological Aging in Three Neotropical Anuran Species," \$250.

Next time you surf the WorldWide Web, crawl, run, slither, slide, jump, or hop over to the CHS web site!

www.chicagoherp.org

You'll find:

- Announcements
- CHS animal adoption service
- CHS events calendar & information
- Herp news
- Herp links
- Meeting/guest speaker information
- Photos of Illinois amphibians & reptiles
- Much, much more!



Chicagoherp.org is accepting applications for banner advertisements or links from herpetoculturists and manufacturers of herp-related products. Visit the site and contact the webmaster for details on how you can sponsor CHS!

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, June 27, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. This will be our popular and always well-attended annual **Show & Tell** meeting. Bring an animal that you find interesting for one reason or another and be prepared to give a short (under five minutes) presentation to the group. Don't be shy. Age (yours) or commonness (the animal's) should not be a limitation. Guidelines for the occasion: don't bring venomous reptiles or endangered species, and please bring only amphibians or reptiles (this means no worms, tarantulas or other invertebrates).

On July 25 **Dr. Martin Wikelski** will speak to us about physical changes that have occurred in Galapagos marine iguanas (*Amblyrhynchus cristatus*) subsequent to the recent El Niño.

The regular monthly meetings of the Chicago Herpetological Society now take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

The Chicago Turtle Club

On June 24 the Chicago Turtle Club will journey to the River Trail Nature Center, 3120 Milwaukee Avenue, Glenview, Illinois. They will meet at the Center grounds at 1:45 P.M. for an informal self-guided tour of the facility. Afterwards, they will trek the nature trail and stalk the ever elusive wild turtle. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: <http://www.geocities.com/~chicagoturtle>.

HerPET-POURRI WILL RETURN NEXT MONTH

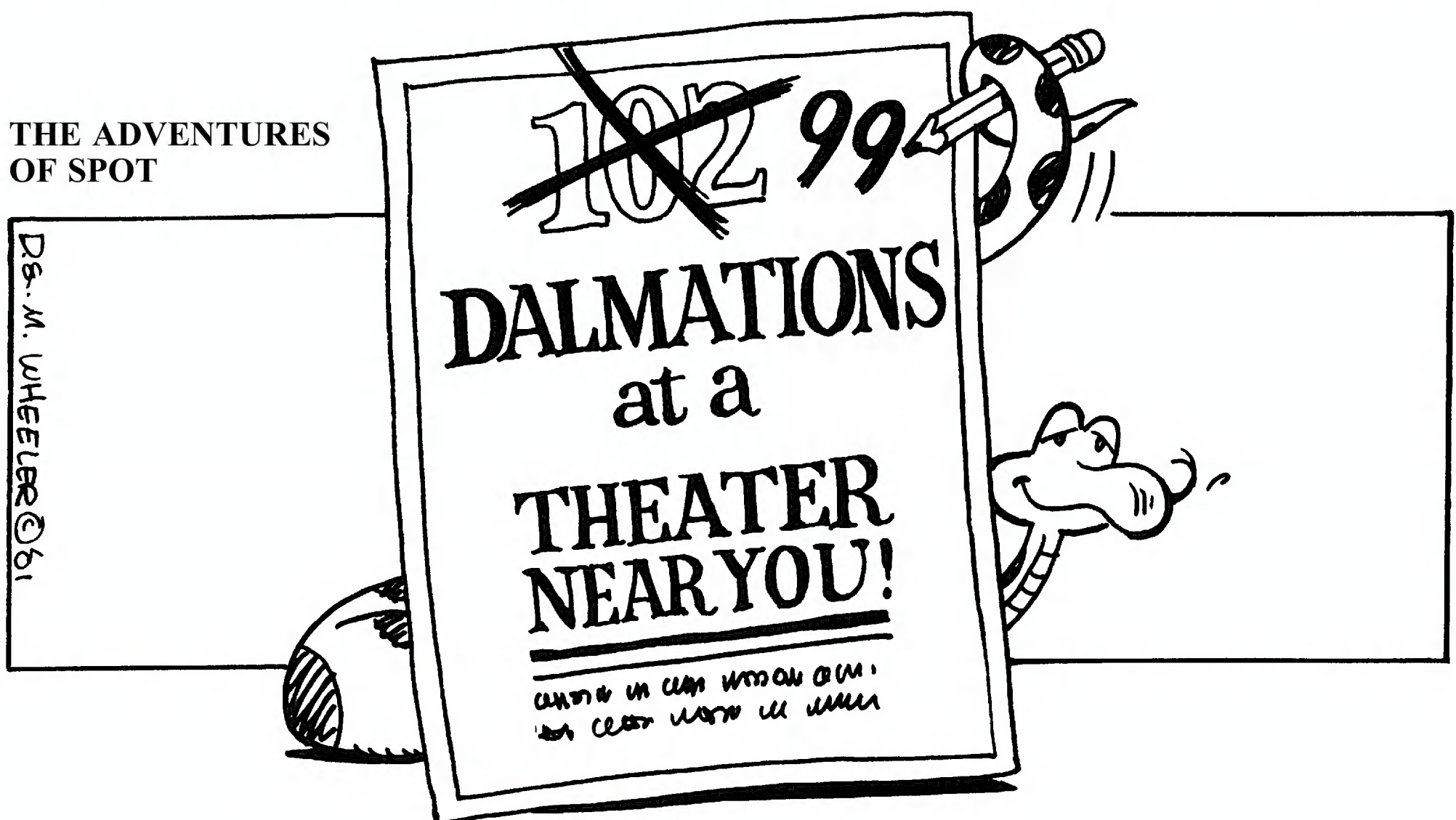
Regular readers of Ellin Beltz's HerPET-POURRI will recall from last month's column that Ellin has moved from Chicago to northern California. Fortunately for us this will not interfere with her ability to provide a regular monthly column for the *Bulletin*, except for the current month, in which she is taking a well-earned vacation.

DONATIONS TO THE APRIL 25 RAFFLE

The following is a listing of those businesses and individuals who generously donated items for our monthly raffle at the April 25 meeting. The donated items are shown in parentheses.

Fauna (*Fauna* magazine); **Tetra** (ReptoMin floating food stix); **Lixit** (watering station); **Timberline** (cricket hydration gel); **Fluker** (iguana food); **Hagen** (OrnamentAlls cage decor / Rept-o-Meter hygrometer / Prime supplement); **Super Pet** (Rock Pool Cover / Island Sanctuary); **ZooMed** (bearded dragon food); **Dr. Gery Herrmann-Mundelein Animal Hospital** (book: *Color Atlas of the Diseases of Fishes, Amphibians and Reptiles*); **Gary Fogel** (rubber snake); **Sally Hajak** (herp color prints); **Lori King** (antique color book plate depicting a softshell turtle / ceramic lizard vase / turtle votive candle holder); **Charlotte Henkle** (aquarium & stand / grapevine cage decor); **CHS** (T-shirts / herp hat).

THE ADVENTURES OF SPOT



NONPROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 9869
CHICAGO, ILLINOIS

CHICAGO HERPETOLOGICAL SOCIETY
Affiliated with the Chicago Academy of Sciences

2060 North Clark Street • Chicago, Illinois 60614
